

Remarks

The Examiner has objected to the specification due to an informality. The Examiner has rejected claims 27-37 under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claims the subject matter which applicant regards as the invention. The Examiner has rejected claims 1-6 and 38-41 under 35 U.S.C. §103(a) as being unpatentable over Jones et al., United States Patent Number 6,220,345 (hereinafter "Jones") in view of Thomeer et al., United States Patent Number 5,933,945 (hereinafter "Thomeer"). The Examiner has rejected claims 8-11 and 43-46 under 35 U.S.C. §103(a) as being unpatentable over Jones in view of Thomeer and further in view of Ross, United States Patent Number 6,065,535 (hereinafter "Ross"). The Examiner has rejected claims 12-16, 22-25, 27 and 33-36 under 35 U.S.C. §103(a) as being unpatentable over Jones in view of Thomeer and further in view of Grigsby, United States Publication Number 2005/0072564 (hereinafter "Grigsby"). The Examiner has rejected claims 18-21 and 29-32 under 35 U.S.C. §103(a) as being unpatentable over Jones in view of Thomeer and Grigsby further in view of Ross. The Examiner has rejected claim 47 under 35 U.S.C. §103(a) as being unpatentable over Grigsby in view of Thomeer. The Examiner has rejected claims 48-51 under 35 U.S.C. §103(a) as being unpatentable over Grigsby in view of Thomeer and further in view of Jones. The Examiner has rejected claims 53-56 under 35 U.S.C. §103(a) as being unpatentable over

Grigsby in view of Thomeer and further in view of Ross. The Examiner has rejected claims 1 and 8-9 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of United States Patent Number 6,684,951. The Examiner has objected to claims 7, 17, 26, 42 and 52 as being dependent upon a rejected base claim but has indicated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Examiner has indicated that claims 28 and 37 would be allowable if rewritten to overcome rejection under 35 U.S.C. §112, second paragraph.

Claims 1-56 are currently pending, of which, claims 1, 12, 27, 38 and 47 are in independent form. Favorable consideration of the present Response as currently constituted is respectfully requested.

#### Allowable Subject Matter

The Examiner has objected to claims 7, 17, 26, 42 and 52 as being dependent upon a rejected base claim but has indicated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Examiner has indicated that claims 28 and 37 would be allowable if rewritten to overcome rejection under 35 U.S.C. §112, second paragraph. Applicant acknowledges and

appreciates the Examiner's indication of the allowability of claims 7, 17, 26, 28, 37, 42 and 52.

Objection to the Specification

The Examiner has objected to the specification due to an informality. Specifically, the Examiner has requested that the cross-reference application data be updated. The applicant has updated the cross-reference application data. Accordingly, applicant believes the basis for the objection to the specification has been overcome.

Rejection under 35 U.S.C. §112, Second Paragraph

The Examiner has rejected claims 27-37 under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claims the subject matter which applicant regards as the invention. Specifically, the Examiner states that "a filter medium" appears three times in claims 27. The applicant has amended claim 27 such that the second and third instances of "a filter medium" now read "the filter medium". Accordingly, applicant believes the basis for the rejecting claim 27 and claims 28-37 that depend therefrom has been overcome.

Rejection under 35 U.S.C. §103 by Jones and Thomeer

The Examiner has rejected claims 1-6 and 38-41 under 35 U.S.C. §103(a) as being unpatentable over Jones in view of Thomeer.

Specifically, the Examiner states that Jones discloses a gravel packing apparatus that includes "[a]n outer tubular 18 having a plurality of openings therethrough [and a] sand control screen assembly 17, 30 disposed within the outer tubular. The assembly prevents the flow of particulate material of a predetermined size but allows the flow of production fluids." In addition, the Examiner admits that Jones does not include "a sensor operatively coupled to the outer tubular or screen assembly." To cure this deficiency, the Examiner states that Thomeer discloses a composite screen (4:42-47) and sensors within the screen (6:50-7:3).

Jones is directed to a well screen having an internal, blank alternate flowpath for delivering fracturing fluid/gravel slurry to different levels within a well annulus. The well screen includes an outer pipe 18 which is positioned over a base pipe 17 thereby forming an annulus 19 therebetween. The circumference of each pipe has a perforated sector and a blank sector, both of which extend along their respective lengths. When assembled, the respective perforated sectors are aligned to form a perforated, production sector and the respective blank sectors are aligned to form the blank, alternate

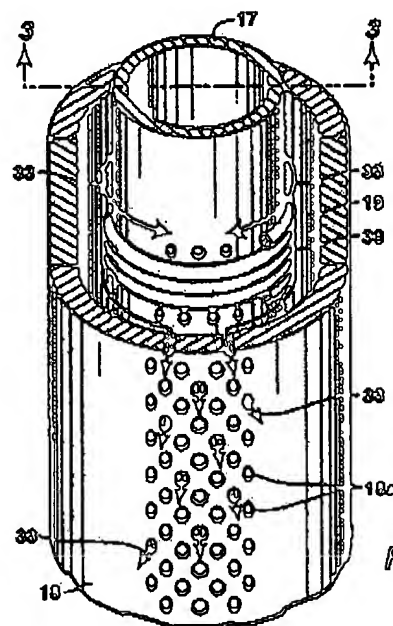


FIG. 2

flowpath. The base pipe 17 is wrapped with wire 30 to prevent solids from flowing through the openings 17a therein. Slurry is pumped into the annulus 19 where it flows circumferentially from the blank, alternate flowpath to exit into the well annulus through the openings 18a in the perforated sector of the outer pipe 18. (Jones, Abstract).

Thomeer is directed to composite materials and their use in coiled tubing. *The composite tubing is a pressurized means of conveying fluids downhole in a wellbore that comprises a multilayered laminate that resists buckling within the wellbore and is fabricated into a hollow tube.* The fibers are oriented in angular relationship to the longitudinal direction of the coiled tubing such, as to provide appropriate strength and buckling characteristics to the coiled tubing. Further, the coiled tubing layered laminate may transmit signals representing data from downhole to the surface. (Thomeer, Abstract, *emphasis added*).

In the excerpts cited by the Examiner, Thomeer states that:

In one aspect of the invention, it is possible to provide gravel packing apparatus for a well comprising a perforated composite gravel packing screen. The gravel packing apparatus could include perforations comprising predetermined leak paths which are chemically removable at will, providing the filtering function to the screen. (Thomeer, Column 4, lines 42-47).

Tubing often buckles when it is placed in deep wellbores, causing problems. Buckling is especially pronounced in horizontal and long reach wellbores because the tubing is subject to gravitational forces that cause large amounts of friction between the tubing and the wellbore. When this friction overcomes the forces pulling

or pushing the tubing into the wellbore, buckling occurs. First, buckling is of the sinusoidal type, which is akin to a two dimensional wave in the tubing, as seen in FIGS. 5a and 5b. Later, as the tubing proceeds further into the wellbore, helical buckling occurs. Helical buckling is shown in FIG. 5c. Helical buckling is a more serious problem, and it is a "corkscrew" effect represented as three dimensional buckling, which eventually leads to total lock-up of the tubing. Helical buckling causes the tubing to be in contact with the inner surface of the wellbore at many (or even all points) which greatly increases the friction encountered by the tubing. Sensors embedded in the wall of the coiled tubing can be used to ascertain when this occurs. When total lock-up is reached, the tubing no longer can be pushed further into the wellbore, and further coiled tubing operations cannot be performed. (Thomeer, Column 6, line 50 - Column 7, line 3).

The Examiner has stated that "[i]t would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified the apparatus of Jones et al. to include sensors operatively coupled to the screen assembly as taught by Thomeer et al. in order to have been able to monitor either the condition of the screen itself or the properties of the fluid passing therethrough."

The applicant respectfully traverses this rejection as the Examiner has failed to establish a prima facie case of obviousness. To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior

art references when combined must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

First, there is no teaching or suggestion in either Jones or Thomeer to make the claimed combination. It is only in hindsight that the Examiner has taken the disparate teachings of Jones and Thomeer to allegedly arrive at the claimed invention.

Second, there is no teaching or suggestion in either Jones or Thomeer that such combination would have a reasonable expectation of success. Specifically, Jones teaches placing a filtering medium 30 around a partially perforated base pipe 17 both of which are positioned within a partially perforated outer tubular 18. Thomeer teaches various multilayered laminate composite tubulars that are used as a pressurized means of conveying fluids downhole in a wellbore that resists buckling within the wellbore. As identified by the Examiner, Thomeer states that the composite tubulars could be perforated to provide gravel packing apparatus. Specifically, Thomeer teaches that the perforated composite tubulars themselves provide the filtering or screening function, i.e., there is no separate filter medium placed around the composite tubulars. (Thomeer, Column 4, lines 42-47). Thus, if one attempted to combine a perforated composite tubular of Thomeer with a well screen of Jones, would the perforated composite tubular take the place of the partially perforated base pipe 17 of Jones, the wire

wrap 30 of Jones or both the partially perforated base pipe 17 and the wire wrap 30 of Jones? As such, there is no reasonable way to even combine the teachings of Jones with the teachings of Thomeer and there is certainly no reasonable expectation of success.

Finally, *assuming arguendo* that the teachings of Jones could be combined with the teachings of Thomeer, which they cannot, Jones and Thomeer fail to teach or suggest all the claim limitations. The applicant has amended claim 1 to read as follows:

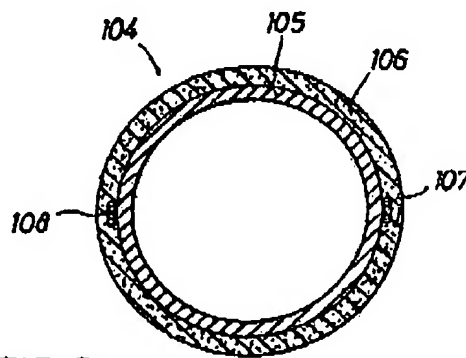
1. (Currently Amended) A gravel packing apparatus comprising:  
an outer tubular having a plurality of openings therethrough;  
a sand control screen assembly disposed within the outer tubular, the sand control screen assembly preventing the flow of particulate material of a predetermined size therethrough but allowing the flow of production fluids therethrough; and  
a sensor disposed between the outer tubular and the sand control screen assembly and operably coupled to one of the outer tubular and the sand control screen assembly.

The applicant has amended claim 38 to read as follows:

38. (Currently Amended) A method for treating an interval of a wellbore, the method comprising the steps of:  
locating a gravel packing apparatus having an outer tubular positioned around a sand control screen assembly within the interval of the wellbore forming a wellbore annulus;  
injecting a treatment fluid into the wellbore annulus; and  
monitoring the treatment process with a sensor disposed between the outer tubular and the sand control screen assembly and operably coupled to one of the outer tubular and the sand control screen assembly.



Claims 1 and 38 specifically recites that the sensor is positioned between the outer tubular and the sand control screen. As admitted by the Examiner, Jones does not teach the use of a sensor much less the position of a sensor. Thomeer teaches that the sensors are embedded in the wall of the coiled tubing. (Thomeer, Column 6, line 66 - Column 7, line 1). As is well known in the field of composite tubing, sensors as well as other optical or electrically circuits and conductors are common provided within the layers of the coiled tubing. (See e.g., Thomeer, Column 2, lines 41-55; Column 8, lines 32-56; Column 10, lines 48-58). As such, the sensors are neither to the interior nor the exterior of the composite tubing but rather located within one of the composite layers or between two of the composite layers. (See items 107 and 108 in figure 6e of Thomeer). As such, even if the teachings of Jones were somehow combined with the teachings of Thomeer, the sensors could not be positioned between an outer tubular and a sand control screen as required by claims 1 and 38.

**FIG. 6e**

Accordingly, the applicant respectfully requests withdrawal of the rejection under 35 U.S.C. §103(a) and allowance of claim 1 as well as claims 2-6 that depend therefrom and claim 38 as well as claims 39-41 that depend therefrom.

Rejection under 35 U.S.C. §103 by Jones, Thomeer and Ross

The Examiner has rejected claims 8-11 and 43-46 under 35 U.S.C. §103(a) as being unpatentable over Jones in view of Thomeer and further in view of Ross. For the reasons presented above, claims 1 and 38 are allowable over the cited art. Accordingly, claims 8-11 which depend from claim 1 and claims 43-46 which depend from claim 38 are also allowable.

Rejection under 35 U.S.C. §103 by Jones, Thomeer and Grigsby

The Examiner has rejected claims 12-16, 22-25, 27 and 33-36 under 35 U.S.C. §103(a) as being unpatentable over Jones in view of Thomeer and further in view of Grigsby. The applicant respectfully traverses this rejection as the Examiner has failed to establish a prima facie case of obviousness. As stated above with regard to Jones and Thomeer, there is no teaching or suggestion within the references to make the claimed combination or of the existence of a reasonable expectation of success. Furthermore, even if the teachings of Jones were some how combined with the teachings of Thomeer, the references fail to teach or suggest sensors positioned between a perforated outer tubular and a sand control screen (amended claim 12) or between a perforated base pipe and a filter medium (amended claim 27). Grigsby does not cure this deficiency. Accordingly, the applicant respectfully requests withdrawal of the rejection under 35 U.S.C. §103(a) and allowance of claim 12 as well

as claims 13-16 and 22-26 that depend therefrom and claim 27 as well as claims 33-36 that depend therefrom.

Rejection under 35 U.S.C. §103 by Jones, Thomeer, Grigsby and Ross

The Examiner has rejected claims 18-21 and 29-32 under 35 U.S.C. §103(a) as being unpatentable over Jones in view of Thomeer and Grigsby further in view of Ross. For the reasons presented above, claims 12 and 27 are allowable over the cited art. Accordingly, claims 18-21 which depend from claim 12 and claims 29-32 which depend from claim 27 are also allowable.

Rejection under 35 U.S.C. §103 by Grigsby and Thomeer

The Examiner has rejected claim 47 under 35 U.S.C. §103(a) as being unpatentable over Grigsby in view of Thomeer. The applicant respectfully traverses this rejection. The applicant has amended claim 47 to read as follows:

47. (Currently Amended) A method for treating an interval of a wellbore, the method comprising the steps of:

coupling first and second joints of a gravel packing apparatus together, each joint having a perforated tubular, a filter medium, a sensor disposed between the perforated tubular and the filter medium that is operably coupled to one of the perforated tubular and the filter medium and an instrument line disposed between the perforated tubular and the filter medium, the instrument line having ends that extend outwardly therefrom;

connecting the ends of the instrument lines from respective joints of the gravel packing apparatus;

locating the first and second joints within the interval of the wellbore forming a wellbore annulus;

injecting a treatment fluid into the wellbore annulus; and  
monitoring the treatment process with the sensors.

Neither Grigsby nor Thomeer either alone or in combination teach, suggest or disclose a gravel packing apparatus having a perforated tubular, a filter medium and a sensor disposed between the perforated tubular and the filter medium that is operably coupled to one of the perforated tubular and the filter medium. Accordingly, the applicant respectfully requests withdrawal of the rejection under 35 U.S.C. §103(a) and allowance of claim 47.

Rejection under 35 U.S.C. §103 by Grigsby, Thomeer and Jones

The Examiner has rejected claims 48-51 under 35 U.S.C. §103(a) as being unpatentable over Grigsby in view of Thomeer and further in view of Jones. For the reasons presented above, claim 47 is allowable over the cited art. Accordingly, claims 48-51 which depend from claim 47 are also allowable.

Rejection under 35 U.S.C. §103 by Grigsby, Thomeer and Ross

The Examiner has rejected claims 53-56 under 35 U.S.C. §103(a) as being unpatentable over Grigsby in view of Thomeer and further in view of Ross. For the reasons presented above, claim 47 is allowable over the cited art. Accordingly, claims 53-56 which depend from claim 47 are also allowable.

Double Patenting Rejection

The Examiner has rejected claims 1 and 8-9 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of United States Patent Number 6,684,951. The applicant has filed herewith a terminal disclaimer to obviate the obviousness-type double patenting rejection of claims 1 and 8-9 as being unpatentable over claims 1-3 of United States Patent Number 6,684,951. Accordingly, the applicant requests withdrawal of the obviousness-type double patenting rejection of claims 1 and 8-9.

Fee Statement

Compared to the initial filing, in the present Response, the number of independent claims has remained the same and the total number of claims has remained the same. The applicant has filed a terminal disclaimer herewith and has included a Form PTO-2038 authorizing payment of \$130.00 for the fee under 37 CFR 1.20(d). The applicant believes no additional fees are due for the filing of this Response. If any additional fees are due or overpayment have been made, please charge or credit, our Deposit Account No. 03-1130.

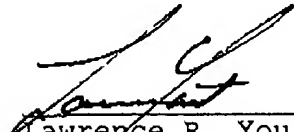
Conclusion

In view of the foregoing, the Examiner is respectfully requested to examine and allow claims 1-56 presented for

consideration herein. Accordingly, a favorable action in the form of an early notice of allowance is respectfully requested. The Examiner is requested to call the undersigned for any reason that would advance the instant application to issue.

Dated this 9th day of November, 2005.

Respectfully submitted:



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